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ARIZONA CORPORATION COMMISSION
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Arizona Corporation Commission

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BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE
APPLICATION OF BLACK MOUNTAIN
SEWER CORPORATION (BMSC), AN
ARIZONA CORPORATION, FOR
DETERMINATION OF THE FAIR
VALUE OF ITS UTILITY PLANT AND
PROPERTY AND FOR INCREASES IN
ITS RATES AND CHARGES FOR
UTILITY SERVICE BASED THEREON.

DOCKET NO. SW-02361A-08-0609
(Phase 2)

RESPONSE by M.M. Schirtzinger P. E.

M. M. Schirtzinger, a Boulders resident and intervener, is filing this brief after reading the voluminous information submitted to the Arizona Corporation Commission (ACC) on the above referenced matter. My background is as follows: I have been in private practice as a consulting engineer for over forty years owning and operating my own Engineering firm. I have designed and supervised the operation of municipal wastewater treatment plants varying in size from 0.10 mgd to 25 mgd and industrial plants from 0.10 mgd to 40 mgd. I am currently working with power companies in Ohio to capture CO₂ from coal combustion using a chemical-biological system of my own invention. Because of this effort I will not be a presenter at the hearing on May 8th or 9th. Only If the Commission so requests would I testify on the 10th to explain the technical issues presented herein.

I testified at the hearing held in 2009 and I opposed the requested rate increase (and I still oppose rate increase). I visited the plant on April 9, 2009 to observe the operation and to see if the odor complaints were justified. I again visited the plant on April 10, 2012 meeting with a plant operator and NOT MUCH HAS CHANGED. No H₂S odor was noted on either visit.

MY POSITION AND STATEMENT

- The Black Mountain Sewer Company (BMSC) **fails to operate** the collection system and water reclamation facility (WWTP) at the best current technology levels nor in the most cost effective manner beneficial to rate payers, the environment and operating personnel.
- The sewer rate structure of a flat rate is unfair to seasonal residents who contribute little or no wastewater flow during the summer months. Seasonal residents are subsidizing business and permanent residences. Sewer bills should be based on water usage obtained from the City of Scottsdale.

THE PRESENT SITUATION

- The WWTP operates as an extended aeration system with 24-hour detention time in four parallel aeration (unit biological reactors) tanks. The maximum capacity of 120,000 gpd (83.3 gpm) is all that is permitted by the Arizona Department of Water Resources (ADWR). However, because of diurnal variations in flow, the instantaneous treatment rate can be as high as 400,000 gpd (277 gpm) when a lift station operates.
- At present, there is a daily discharge to the City of Scottsdale from the plant. This is waste sludge from the extended aeration units via air lift pumps, backwash water from the sand filters, and when the flow rate reaches 120,000 gpd the pressure grinder pumps in the head box to the four tanks shut off automatically based on a flow totalizer and all flow goes to Scottsdale. The plant blowers (four positive displacement blowers) continue to run adding oxygen to the aeration tanks but the food supply to the mixed liquor is shut off starving the growth and viability of the mixed micro flora present. It would be difficult to think of a poorer operating system. There is no rigorous testing to maintain optimum mixed liquor suspend solids in the aeration tanks.
- There are seven lift stations that discharge to BMSC water reclamation plant and seven that discharge to Scottsdale. Some of these are of the drywell-wetwell type using low efficiency "trash pumps" varying in horsepower from 10 to 23. While the BMSC treats 120,000 gpd, 150,000 to 250,000 gpd are discharged to Scottsdale in the summer months and 250,000 to 375,000 gpd is sent to Scottsdale in the winter months.

RECOMMENDED CHANGES IN OPERATION

- An inline comminutor such as that manufactured by Worthington should be installed in parallel with the existing coarse bar screen. The discharge should pass directly to newly configured aeration tanks by gravity eliminating the need for the splitter box, inlet structure, and two 1.5 HP grinder pumps. The existing inlet structure is the major source of raw sewage odor. The discharge should enter under water to prevent odor and a tapered aeration system should be used to provide the needed oxygen at the point of entry.
- The capacity of the plant should be increased to 240,000 gpd by changing the unit process to a contact stabilization system with a detention time of 12 hours using only two tanks. One tank would then be converted to a re-aeration tank and one to an aerobic digester. Using the four tanks in this manner will allow the plant to be rated for 240,000 gpd. This will permit a greater quantity of treated wastewater to be sold to the Boulders Resort, less power consumption, less discharge to Scottsdale and a related lower cost for the company and consumers. It is also the most environmentally sound wastewater handling method. The air lift pumps should be replaced with pressure grinder pumps using aspirators as manufactured by S&K or Penburthy. This will permit the Roots Blowers to be cycled on timer controls thus saving energy.
- On the collection system, the lift pumps in use are low efficiency high horsepower trash type pumps rather than pressure grinder (PG) type pumps. Use of 5 hp pressure grinder pumps would eliminate the need for dual force mains from the main (commercial) lift station, avoiding surcharging the collection system and eliminating the need for the air jumpers recently installed and avoid double pumping at the inlet structure where pressure grinder pumps are installed. An

aspirator should be used on the discharge from the pressure lift pumps at the point of discharge into the gravity system in order to add oxygen and keep the sewage from going septic.

- Wastewater should flow into the plant through an in-line comminutor with an underwater discharge to eliminate odors rather than the present headworks that emit the strongest odors at the plant. The existing bar screen should be used as a standby only.
- Chlorination at the plant is inefficient. Effluent disinfection is a function of time, temperature, ph, mixing and chlorine concentration. Mixing at the plant is poor and improved mixing would result in less liquid chlorine use.
- The cost of implementing the items above would be offset by operating savings, less treatment cost for discharge to Scottsdale and increased sales of reclaimed wastewater to the Boulders.
- While much has been made of odor problems by residents, often odor in homes can be traced to dry traps from which water has evaporated allowing sewer odors to be detected in the home. No real information has ever been provided as to the source of odors. When Mr. Marshall, whose home is nearest to the plant, purchased the home he knew, or should have known, there was an existing WWTP next door as well as a golf cart path.
- It has been stated that closing the plant will result in two saleable lots. This is doubtful because the plant is located at the low point in the subdivision and next to a golf cart path. These lots would not be desirable for residential homes and, in all likelihood, will never be sold unless deeply discounted. Closing the plant is not only environmentally unsound but it will result in a windfall for BMSC and higher costs to rate payers and may not eliminate the collection system odors particularly in the summer months when flow is very low.
- Replacing the reclaimed water from the BMSC plant with reclaimed water from the Scottsdale plant is environmentally unsound. Scottsdale's plant is at least 1000' lower in elevation meaning that the 240,000 gpd would need to be pumped uphill 1000 feet plus considerable line loss. This will require approximately a 100 HP Pump. Generating this energy results in the discharge of CO₂ to the atmosphere and that is not desirable.

RECOMMENDATIONS TO THE COMMISSION

- The Commission should order the BMSC to hire a consulting engineering firm to prepare a report for ADWR and the Commission requesting an increase in the plant capacity to 240,000 gpd and make the other changes in plant operation and configuration outlined above.
- The recent rate increase should be rolled back until the above improvements are completed.
- If BMSC is unable or unwilling to make the above improvements, the Commission should revoke the BMSC franchise and allow the City of Scottsdale to provide wastewater treatment for the area as they now do for more than 50% of the flow.

By 
M. M. Schirtzinger pro se

Dated 4-30-2012

ORIGINAL AND 13 COPIES
Of the foregoing were mailed this
30th day of April to
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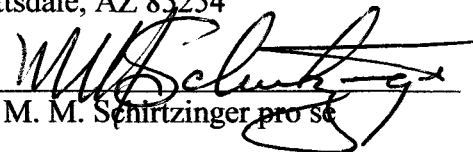
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By


M. M. Schritzing pro se

Dated

4-30-2012



A note from the desk of . . .

M. M. SCHIRTZINGER

I INTENDED TO
DO A PRESENTATION
ON MAY 11, BUT
I FIND YOU HAVE
ALREADY COMPLETED
THE HEARINGS ON MAY 8